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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/066,276 | 01/30/2002 | Gregory J. Wells | 01-39 US | 4421 |

23693 7590 06/09/2003

Varian Inc.
Legal Department
3120 Hansen Way D-102
Palo Alto, CA 94304

EXAMINER

KALIVODA, CHRISTOPHER M

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2881

DATE MAILED: 06/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/066,276

Applicant(s)

WELLS, GREGORY J.

Examiner

Christopher M. Kalivoda

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1, 2, 4 - 9, 11 - 15 and 17 - 19 is/are rejected.
- 7) ☐ Claim(s) 3, 10 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 30 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities: The specification refers to a "traveling field generator 7" on page 1, line 29. This should be a "trapping" field generator. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 6, 7, 8, 11, 12, 13, 18, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Buttrill, Jr. U.S. Patent 5,793,038. Regarding independent claims 1, 8, and 13, Buttrill, Jr. describes a quadrupole ion trap for use in a mass spectrometer comprising:

- a. a ring electrode (see column Fig 1, ref sign 10);
- b. a pair of end caps (see Fig 1, ref sign 11 and 12);
- c. an RF trapping voltage for applying a trapping voltage to the ring electrode (see column 1, lines 22-26 and Fig 1, ref sign 34);
- d. a computer controlled apparatus for selectively applying pre-calculated waveforms to the end caps for isolating an ion with a specific mass to charge ratio (see column 5, line 43-45 and column 4, lines 54-67).

Regarding claims 6, 11, and 18, Buttrill, Jr. describes the ion trap further comprising a trapping parameter adjusting means for matching the secular frequency of a particular ion to a central frequency of the pre-calculated waveform (see column 4, lines 54-60 and column 5, lines 35-46). In other words, by adjusting the amplitude of the RF voltage (trapping parameter), this causes the desired ion mass to have a value q_z (and also secular frequency) that corresponds to the selected B_z value of the stored waveform (pre-calculated waveform). This stored waveform has a single gap (central frequency) at the frequency desired to store ions.

Regarding claims 7, 12, and 19, Buttrill, Jr. describes the ion trap wherein the parameter adjusting means adjusts the amplitude of the trapping voltage (see column 5, lines 42-46).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 4, 5, 9, 14, 15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buttrill, Jr. U.S. Patent 5,793,038 in view of Doroshenko et al. U.S. Patent 5,696,376. Regarding claims 2, 9, and 14, Buttrill, Jr. teaches the limitations of

independent claims 1, 8, and 13 as described above. However, the reference is silent with respect to a memory for storing a library of optimized notched waveforms with each waveform being pre-calculated for a specific mass.

Doroshenko, et al. describes a library of waveforms pre-calculated for a specific mass (see column 19, lines 32-34). In this case, although the stored waveforms are for a range of masses, as long as a desired mass is included in that range, then the waveform is pre-calculated for a specific mass.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Buttrill, Jr. to include a library of optimized notched waveforms pre-calculated for a specific mass.

The motivation for including a library of stored waveforms would be to allow the use of any waveform at any moment in time (see column 19, lines 35-38).

Regarding claims 4, 5, 15, and 17, Buttrill, Jr. also teaches the ion trap wherein the computer controlled apparatus further comprises a digital to analog converter for converting digital data from the memory to an analog signal (see column 5, line 53-56). The use of amplifiers to amplify a signal when needed is considered routine skill.

Allowable Subject Matter

Claims 3, 10, and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The reason for indicating allowable subject matter is that a review of prior art failed to disclose or make obvious a library of single frequency collision induced dissociation (CID) waveforms. In addition, the waveforms used in the cited references are for ejecting ions and are also not single frequency.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Kalivoda whose telephone number is (703)-305-7443. The examiner can normally be reached on Monday - Friday (8:30 - 5:00).

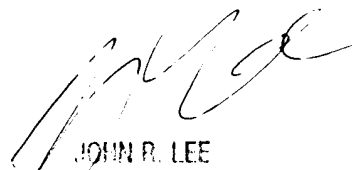
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (703)-308-4116. The fax phone numbers for the organization where this application or proceeding is assigned are (703)-872-9318 for regular communications and (703)-872-9319 for After Final communications.

Application/Control Number: 10/066,276
Art Unit: 2881

Page 6

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0956.

cmk
May 13, 2003


JOHN R. LEE
SUPERVISOR, PATENT EXAMINER
MAY 13 2003